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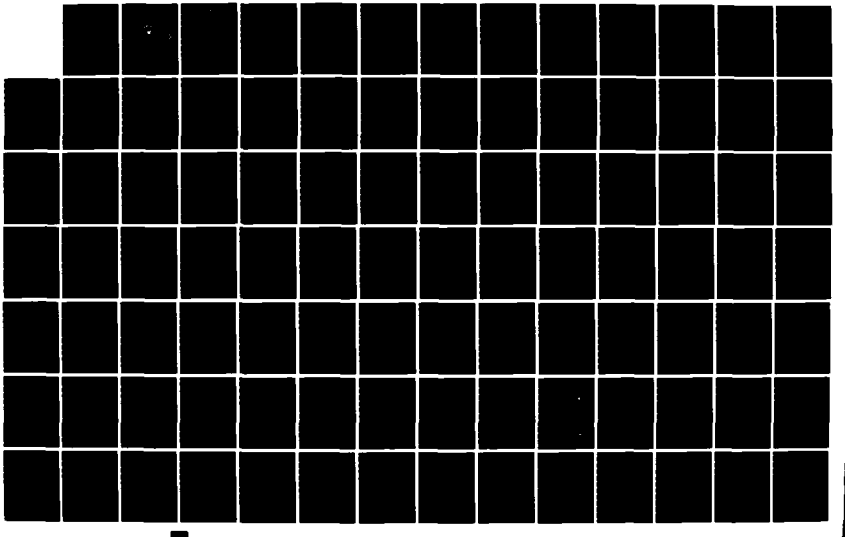

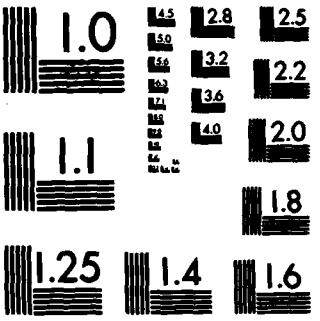

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NAVAL POSTGRADUATE SCHOOL
Monterey, California

THESIS

STUDENT-FACULTY EVALUATION:
WHAT PLACE IN ACADEME?

by

Vivian G. Melidosian
and
Carol A. White

June 1984

Thesis Advisor: R. A. Weitzman

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of a questionnaire distributed to all teaching professors in the NPS Administrative Sciences Department. The second study concerns a questionnaire completed by 258 Administrative Sciences students, and the third study considers the responses of 560 students to four supplementary items added to the SOF. The results indicate that neither students nor faculty members feel strongly that SOF's actually measure or improve teaching effectiveness, that a large part of the variation in SOF ratings is attributable to factors other than a professor's teaching quality and, finally, that a student's anticipated course grade or cumulative grade point average has little correlation with the SOF ratings given the professor.

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Student-Faculty Evaluation: What Place in Academe?

by

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Submitted in partial fulfillment of the requirements for the degree of

MASTER OF SCIENCE IN MANAGEMENT

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ABSTRACT

Questions regarding the usefulness of the Naval Postgraduate School's Student Opinion Form (SOF) as a device to measure teaching effectiveness have prompted this research. The possibility that the SOF may weigh heavily in pay, promotion, and tenure decisions is cause for research into its validity and reliability as an evaluation instrument. The first of three separate studies described here consists of an analysis of a questionnaire distributed to all teaching professors in the NPS Administrative Sciences Department. The second study concerns a questionnaire completed by 258 Administrative Sciences students, and the third study considers the responses of 560 students to four supplementary items added to the SOF. The results indicate that neither students nor faculty members feel strongly that SOF's actually measure or improve teaching effectiveness, that a large part of the variation in SOF ratings is attributable to factors other than a professor's teaching quality and, finally, that a student's anticipated course grade or cumulative grade point average has little correlation with the SOF ratings given the professor.

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I. INTRODUCTION

A. MOTIVATION

In recent years, a great deal of interest has been expressed about evaluating the quality of instruction. Reasons for this interest appear to include decreasing college enrollments, increasingly demanding educational goals, and a growing emphasis on instructional accountability. Since 1975, the Student Opinion Form (SOF) has been used at the Naval Postgraduate School as a tool to measure the teaching effectiveness of instructors. Student-faculty evaluations (SFE's) of instructor effectiveness have become widely accepted in the academic world as helpful indicators of performance, but there has been considerable controversy regarding their validity for use in pay, promotion, and tenure decisions. In addition to the questionable validity of SFE's, another common criticism is that they are biased by variables that are unrelated to teaching effectiveness. Frequently, however, computer formatted students' evaluations are the only form of faculty evaluation used, mainly because of ease of administration and processing.

Many college faculty fear that too much emphasis on student-faculty evaluations may lead to manipulative and other corruptive practices that would have a negative impact on the quality of education and on the academic community

in general. These concerns are certainly not new to the academic world. In fact, these problems have plagued educators as far back as medieval times. Historical writings about medieval European universities discuss the restrictive methods resorted to in an attempt to prevent these potentially corruptive practices. Professors were paid a "collecta" or fee by each student to teach an agreed-upon amount of material by a specified date. A group of students was appointed by the rector to report negligent professors who had not fulfilled their contractual agreement. Based upon this group's evaluation, a fine would be imposed upon the professors for each day they had fallen behind in their teachings. Although this may be viewed as an extreme response to the problem, many educators today question the ultimate impact of student evaluations on teaching effectiveness. These concerns, as well as the potential benefits to be gained from student-faculty evaluations, have triggered numerous studies.

B. RESEARCH

Research interest in student-faculty evaluation (SFE) has increased significantly in recent years. This concentrated attention not only is due to student interest but also seems to be a function of the increased use of SFE in the determination of faculty promotions and salaries. In fact, the agencies that govern public colleges and

universities in some states require that SFE be employed as one component in pay, promotion, and tenure decisions. This requirement is apparently based on the premise that SFE provides a precise and quantifiable evaluation of instructors. However, the assignment of numbers to instructor/course attributes does not automatically confer reliability or validity upon the rating system as a whole. There have been numerous studies with extremely inconsistent results as to the relationship between SFE and teaching effectiveness (as measured by amount learned). [Ref. 1] Studies that resulted in both highly positive [Ref. 2] and highly negative correlations [Ref. 3] have been reported; however, the majority of these studies yielded correlations that did not differ significantly from zero [Ref. 4].

The major aim of student-rating proponents is basically to obtain more valid, reliable, and effective means of incorporating the evaluation of teaching into advancement procedures that might otherwise be available. These proponents also feel that there are many benefits to be gained from these evaluations. Specifically, Costin, Greenough, and Menges, in an extensive review of reliability, validity, and usefulness of student ratings, state that:

> 1. Such ratings could provide feedback which the instructor might not be able to elicit from students on a face-to-face basis. (This information alone, with no sanctions contingent, could improve teaching.)

2. They could provide departmental and college-wide norms against which individual faculty ratings could be judged.

3. They could provide a way in which a faculty member could, if he desired, demonstrate his undergraduate teaching effectiveness to those who have expressed an interest in evaluating this parameter for salary increase.

4. They could provide information to the department and college on areas of relative strength or weakness in undergraduate teaching, suggest directions for the development of new courses or programs, and provide evaluative information and norms on the various new programs which are implemented.

5. They could provide the student with a source of information to aid him in the selection of courses. [Ref. 5]

It should be noted that these benefits can exist only to the extent that student-faculty evaluations portray accurate and valid appraisals of classroom instruction.

Maslow and Zimmerman, when asking students to make global ratings of teachers' effectiveness, provided the following definitions to aid students in making their ratings:

> . . . A person deserving the highest possible rating, as a teacher, was described as one who is both capable and efficient, who loves his job and manages to inspire his students, who is himself inspired with his work, who is talented, and who not only respects and appreciates his students, but also has good relations with them. The highest rating as a personality was to be given to a very healthy, well integrated person, subjectively at ease with himself, happy or content, using all his constructive capacities, enjoying life without neurotic or psychotic maladjustments. [Ref. 6]

Though Maslow and Zimmerman found a 0.76 correlation between students' ratings of "good teaching" and "good personality," both personality and ability were so vaguely defined as to

cause difficulty in interpreting the results with any precision. [Ref. 7]

It cannot be denied that SFE is influenced by many non-instructional variables, which, more than likely, account for the inconsistent findings, as noted above. Variables such as class size, course level, presentational style, actual or expected grade, and student group are all likely major determinants of SFE. For instance, an interesting example of the effect of presentational style and format was demonstrated at one school in which a professional actor was hired to deliver a series of lectures to a large student group. Because of his enthusiastic, humorous, and personable manner, he received extremely high ratings; though entertaining, educational content of his presentation was low or totally absent. [Ref. 8] The favorable rating in this case can be considered to be a function of superficial popularity or what is sometimes referred to as the "popularity halo."

In another study, Brown (1976) found that student grades accounted for approximately nine percent of the variance among student ratings (on the average across classes). It was his interpretation that, as a result of this small but positive relationship between student grades and student ratings, professors can technically "buy" high student ratings by giving their students high grades. [Ref. 9] This is a very popular interpretation of the frequent low correlations and poor regression results that are obtained. Conversely,

Voeks and French have found in their studies that "high ratings cannot be 'bought' by giving high grades, nor are they lost by giving low grades." [Ref. 10] This finding would imply that college students have greater objectivity and less superficial value systems than they have been given credit for by others.

Howard and Maxwell (1980) have proposed three models that attempt to bridge the gap between these two schools of thought. [Ref. 11] Their first model (Figure 1) very simply states that students' evaluations are directly dependent on their expected or actual grades.

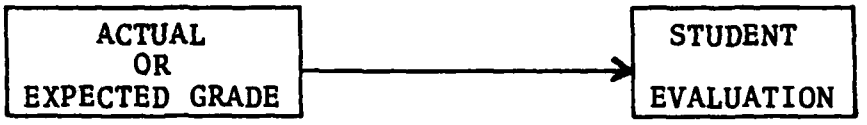

Figure 1. Grading Leniency Bias Model

Their second model (Figure 2) suggests that greater teaching effectiveness causes improved student performance, which consequently results in both higher student grades and student evaluations. Howard and Maxwell's final model (Figure 3) proposes that greater student motivation causes better student performance, resulting in higher student grades and higher student evaluations.

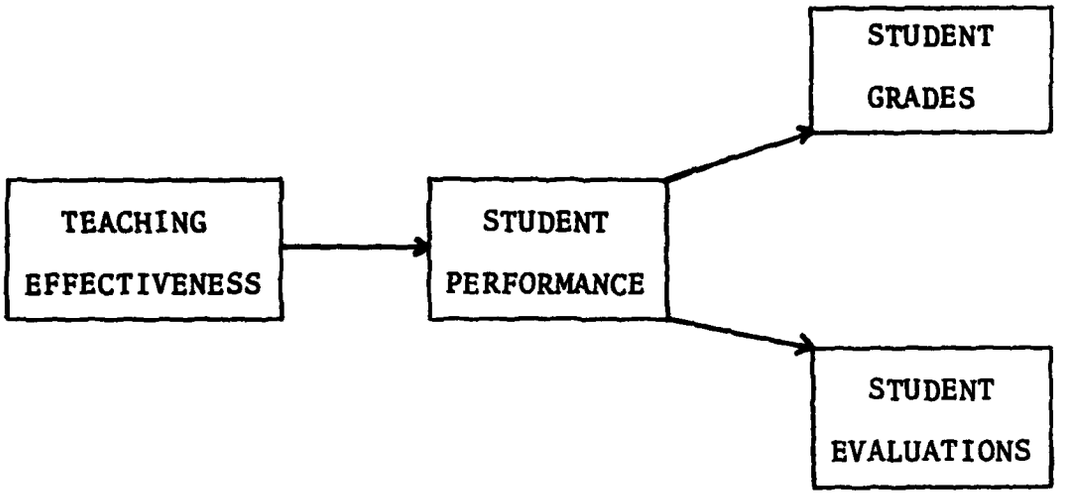

Figure 2. Teaching Effectiveness Model

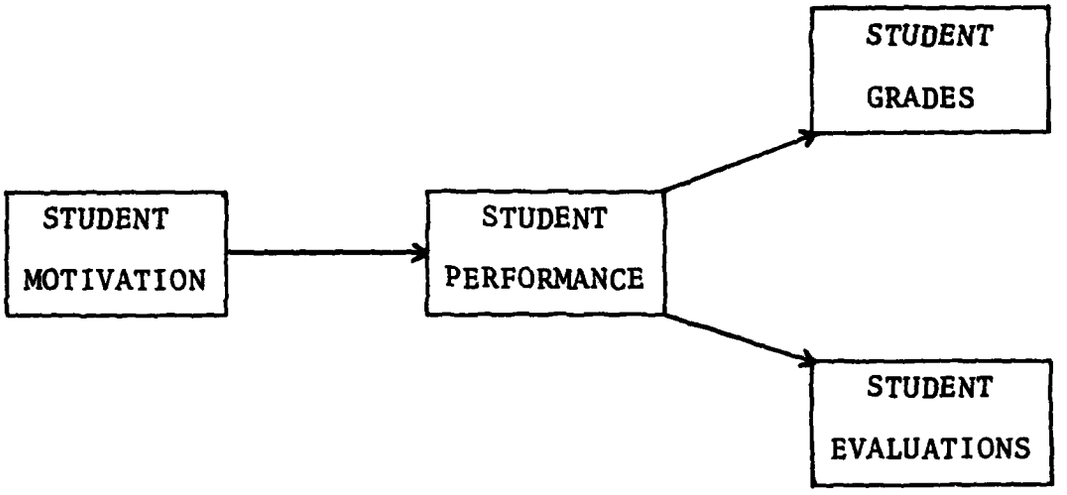

Figure 3. Student Characteristics Model

Figures 2 and 3 both exhibit a positive relationship between student grades and student evaluations. However, this association is interpreted as a logical result of student performance and not bias. As can be seen, there is little agreement among researchers about the effects of student grades on student evaluations, and even concerning the interpretation of the research results.

Several researchers have also focused their studies in the direction of instructor personality traits. Results in this field reveal that "overall effectiveness" of teaching, as perceived by students, seems to be positively related to instructor characteristics (e.g., imagination, intelligence, emotional stability, enthusiasm). For example, Hildebrand and Wilson conducted a highly acclaimed research project of this kind. Their main goal was to develop a reliable instrument that would provide a basis for evaluating teaching that could also be incorporated into advancement procedures. Their report discusses the development of three forms of varying lengths that could be used as teaching evaluation instruments for the California State University system. Both student and faculty characterizations of effective teaching were assessed, but the final recommended instrument relied heavily on the students' characterization. Five scales (teacher description scales), established from this instrument via factor analysis, have the following conceptual interpretations:

1. Analytic/Synthetic Approach--scholarship, with emphasis on breadth, analytic ability, and conceptual understanding.

2. Organization/Clarity--skill at presentation, but is subject-related, not student-related, and not merely concerned with rhetorical skills.

3. Instructor-Individual Student Interaction--rapport with the class as a whole, sensitivity to class response, and skill at securing active class participation.

4. Instructor-Individual Student Interaction--mutual respect and rapport between the instructor and the individual student.

5. Dynamism/Enthusiasm--flair and infectious enthusiasm that comes with confidence, excitement for the subject, and pleasure in teaching. [Ref. 12]

These five scales have become widely acknowledged and several researchers have based their studies on them.

Standard characteristics currently found on over twenty-eight student-faculty evaluations were reviewed in this study. The following factors seemed to be the most relevant and popular: course/lecture organization, instructor attitude toward student understanding, instruction preparation, clarity of explanation, instructor knowledge, instructor evaluation of student, ability to teach at appropriate level, instructor attitude/enthusiasm toward course, instructor attitude toward questions, instructor control of class time, instructor availability, instructor ability to evoke interest, clarity of course objectives, instructor attitude toward student progress, rapport with students, course workload, and, finally, relations of subject matter to real world applications. There also have been studies that numerically

rank, by importance, the above factors by polling student groups. The majority of these studies found course organization to be the most important factor.

Other studies have taken a slightly different approach and have attempted to determine a set of mutually exclusive factors that are relevant to satisfaction or dissatisfaction with teacher performance. For example, Elster et al. used the critical incident technique to determine the variables that lead to students' satisfaction with instructors at the Naval Postgraduate School. The students (over 250) were asked to identify a time when they were especially satisfied or dissatisfied with a teacher and to describe what had led them to feel that way. A set of collectively exhaustive and mutually exclusive content categories were developed. The category labeled "organization and preparation" was the most frequently appearing response, followed by "instructor's traits" and "instructor's classroom or presentation techniques." The "instructor's knowledge of the subject" and "evaluation of students in general" were also categories that were frequently mentioned. [Ref. 13].

Similarly, Gadzella (1968) asked a randomly selected sample of students to state their opinions of an "ideal professor." This study found that the four most important criteria were knowledge of subject, interest in subject, flexibility, and preparation. [Ref. 14].

Costin (1968) asked over 200 graduate and undergraduate students from three different universities to rate statements regarding the classroom behavior of the "best lecturer" that they had ever encountered. A four-point integer scale ranging from (4) "almost always occurred" to (1) "almost never occurred" was used. Items such as "acted interested in the material," "was well prepared," "used relevant examples," "followed a logical sequence of thought," and "explained clearly" received mean score ratings above 3.5. [Ref. 15]

It has been disputed that students' judgments of desirable criteria of teaching effectiveness many times are immature and inaccurate and lack long-term perspective. This point has been discredited on numerous occasions. For example, Drucker and Remmers asked college alumni what they thought the most important qualities of a good instructor were, and compared the answers with current undergraduates' views. They found that both groups agreed identically on the ranking of these criteria:

a. adequacy of preparation
b. interest
c. stimulation of intellectual curiosity
d. "progressive" attitude

In addition, they found that student ratings correlated positively with alumni ratings of the same instructors [Ref. 16].

In summary, much research has been completed in the above areas of student-faculty evaluation. Although researchers' approaches may differ, they are all, in essence, attempting to determine the most reliable, valid, and appropriate method of student-faculty evaluation.

C. SOF HISTORY AND DEVELOPMENT

The Student Opinion Form (SOF), which is presently used at the Naval Postgraduate School, was developed locally and instituted in June of 1975. This particular form replaced the Student Instruction Report (SIR), which was a widely used form obtained from the Educational Testing Service (ETS) at Princeton. The SIR elicited students' judgments of such aspects as the organization of the course, the pace of the course, the instructor's helpfulness or availability to students, and the clarity of objectives and presentations. The SIR contained 39 questions while the presently-used SOF contains 16 questions as well as a provision for written comments. The free-form comments afford the student a means of additional communication and an opportunity to convey specific feedback to the instructor (which is available only to the instructor). The SOF was adapted from the technique of Hildebrand and Wilson (1971) and formatted after SIR. More specifically, seven of the questions on the current SOF were taken directly from the SIR form and the remaining questions were added by an appointed committee of NPS professors.

The present SOF system requires that these SOF forms be distributed at the end of each term and that all students individually fill out the sixteen-item questionnaire for each course that they are enrolled in. Items one through eleven are behavioral in nature while items twelve through sixteen are "overall" ratings. These questionnaire items are: (1) The course was well organized; (2) Time in class was spent effectively; (3) The instructor seemed to know when the students did not understand the material; (4) Difficult concepts were made understandable; (5) I had confidence in the instructor's knowledge of the subject; (6) I felt free to ask questions; (7) The instructor was prepared for class; (8) The instructor's objectives for the course have been made clear; (9) The instructor made this course a worthwhile learning experience; (10) The instructor stimulated my interest in the subject area; (11) The instructor cared about student progress and did his share in helping us learn; (12) Overall rating of the instructor; (13) Overall rating of the course; (14) Overall rating of the textbook(s); (15) Overall rating of the quality of the exams; and (16) Overall rating of the laboratories. All of these items are scored on an integer scale from zero to five. The response options for the behavioral items are: no comment, strongly disagree, disagree, no strong opinion, agree, and strongly agree, respectively; the response scale for the overall items is as follows: N/A, poor, fair, average,

excellent, and outstanding, respectively. Appendix A shows an actual SOF used in this study for analysis purposes.

The NPS SOF's were processed in-house for several years via an optical scanning machine. Numerous mechanical breakdowns of the op-scanner, as well as machine processing inaccuracy, resulted in a great need for a more flexible and accurate system. In the spring of 1983, processing was delegated to a civilian contractor, McGraw-Hill, which enabled the Naval Postgraduate School to receive results approximately one week following submission. Processing costs of the SOF run approximately $.25 per page. NPS submits between 6000 and 7000 forms per quarter for optical scanning at McGraw-Hill.

Student-faculty evaluations at NPS were initially intended to be used strictly as feedback for the individual professors to aid in the improvement of instruction. They have since evolved into a supportive evaluation tool to be used by faculty administrators as an overall aid in pay, promotion, and tenure decisions. This evolution into an administrative use has created considerable controversy.

Zelby states that one major cause for the growth of the student-faculty evaluation controversy is the "trend toward formal, quantitative use of the results of the evaluations in determinations of faculty promotions and salaries." He states further that there are three reasons for this trend:

> (1) SFE provides documented, precise, empirical evaluations of instructors; (2) it tends, thereby, to relieve academic administrators from the responsibility of exercising judgment about teaching performance and ability; and (3) it tends to constitute proof that something, indeed, is being done to improve teaching. [Ref. 17]

In 1977 and 1978 there seemed to be a growing interest on the part of NPS faculty and students in the Student Opinion Form. In April of 1977, the NPS Scholarship Committee submitted a memorandum to the Faculty Council recommending, among other things, the initiation of a statistical research project to determine the significance of SOF scores. In addition, the Student Council took the initiative to prepare a SOF information sheet for dissemination to the student body based on information acquired from NPS faculty administrators. Appendix B contains a copy of the Student Council's memorandum. Interest was so great as to evoke the development of a proposed new Student Opinion Form. This alternative form was never instituted at NPS, though it offered many innovative ideas.

When the SOF was initially developed, strict guidelines were outlined for its administration. Unfortunately, in the past ten years there has been a decline in the emphasis placed on the careful adherence to these guidelines, resulting in the present lack of consistency in SOF administration among course segments.

The initial guidelines required the SOF's to be completed within the last two weeks of the quarter, prior to

finals, and during class time. One SOF was to be filled out, in the absence of the professor, by each student for each class segment he or she took for course credit. Specific instructions for completion of the SOF were provided on each form (e.g., soft black pencil, no ink). The SOF forms were to be disseminated by the professor and collected by the appointed section leader at the end of the allotted time. Once collected, the SOF's were to be placed in an envelope and immediately submitted to the department office. Neither the professor nor the section leader was to review the completed forms. Once the processing of the SOF was completed, summary statistical data were provided to the department chairman and the actual SOF's were returned to the professor.

The original guidelines are still in effect; however, because of inadequate guidance and lax enforcement, little consistency in SOF administration exists in the system today. It is not unusual for the SOF's to be filled out at home, completed at a later date (sometimes well into the following quarter), or never completed at all. This problem has been compounded by the frequent complaints of insufficient time being provided to fill out the SOF's. There are also numerous instances of the professor remaining in the classroom and wandering amongst the students during SOF completion. Another problem is that students tend not to read the

instructions and, hence, to fill out the computer forms incorrectly. In addition, extraneous markings or comments are frequently made in areas other than those designated. It also has become commonplace for the section leaders and other student members to review the completed SOF's in their entirety prior to submission. Because of the lack of specific and comprehensive instructions or other guidance, many of the above infractions contribute to further poor compliance, as can be seen in the mean SOF return rate. As an example, the SOF percentage return rate in the Administrative Sciences Department for the past eight years has averaged 76%. (See Appendix C.) Despite a slightly increasing return rate trend over this period, there is still considerable apathy among students toward SOF's. Unless greater emphasis is placed on the careful completion of SOF forms and new interest rekindled in their validity as an evaluation tool, their usefulness if not their use will continue to decline until they serve no further purpose.

In addition to these problems, there are several other concerns with the processing and utilization of the SOF. As was previously stated, processing time at McGraw-Hill requires approximately one week; therefore, it was anticipated that the completed SOF data would be returned to the faculty during the first week of the following term. Unfortunately, a one-and-a-half to two-month turnaround time has become reality. This delay is primarily due to careless completion

of SOF's, thus requiring extensive editing. At present, limited available resources allow for only one editor to make these corrections. Since nearly 20% of the 6000 completed SOF's require editing, this job generally exceeds one month. In essence, it was unrealistic to expect a one- to two-week turnaround time; however, this tremendous editing problem was never expected.

By the time the evaluations are available to the professors, the school is well into the following term. The SOF information by this time may be virtually irrelevant, since the instructors are most likely teaching a different student group and possibly a different course. In any case, feedback received at the beginning of the quarter would allow sufficient time to make changes in course structure, exams, or even possibly teaching approach.

D. DIRECTION OF RESEARCH

The review of much of the previous research in the area of SFE, as well as the history of NPS's own SOF, led to an inquiry into several areas related to SFE. Over the past nine years, it appears that interest in SFE has waned. During the time between 1965 and 1975, it was evident that there was a burgeoning concern regarding the quality of college and university teaching. Prior to this time, research and publication were considered to be of primary importance in the evaluation of a professor's capabilities.

> Historically, every generation of students has been hungry for good teachers, but the current generation has been the first in this country to mount an organized attack on what they charge has been the Establishment's lack of concern for the poor quality of college instruction. [Ref. 18]

In order for quality of teaching to improve, a reliable method for measuring teaching effectiveness must be incorporated into the educational system.

The situation just described prompted the authors of this paper to address these issues pertaining to SFE at the Naval Postgraduate School. Three individual studies were pursued in this area. All data collected were restricted to the NPS Administrative Sciences Department. The first study concerned a professor questionnaire on the NPS Student Opinion Form that was distributed to fifty instructors who were then teaching at least one course. The second involved a student questionnaire on the SOF that was disseminated to 258 students. Finally, in the third study, four additional questions were added to the currently-used NPS SOF for the purpose of gathering further SOF information.

II. PROFESSOR QUESTIONNAIRE

A. MOTIVATION

The decision to design and administer a professor questionnaire was primarily motivated by candid comments that emerged from informal conversations with professors from different departments at the Naval Postgraduate School. In addition, myths and rumors regarding the use and purpose of Student Opinion Forms have abounded among students and faculty. There is as much variation in opinion by the professors as there is among students on the value of the SOF as a feedback and evaluation tool. Hutchison cautions against the use of student-faculty evaluations for evaluation purposes because the students are, in essence, merely reporting perceptions, not making performance appraisals. [Ref. 19] It was our general impression that many professors seriously question the validity and reliability of the SOF, and place little credence in the SOF results,

A study by Herbert W. Marsh indicates that this skepticism about student-faculty evaluations is not uncommon among faculty members.

> Faculty are concerned about teaching effectiveness, even to the extent of wanting it to play a major role in administrative decisions, but have no confidence in any measures of teaching effectiveness--including students' evaluations . . . . An important role of research in students' evaluations, besides demonstrating their reliability, validity, and lack of

bias, is to convince faculty and administrators of their worth. [Ref. 20]

For example, some professors feel the senior class member (or section leader) has a great deal of influence over the ratings received by the professor. It has been rumored that in some cases the class section leader has organized meetings of the class members to arrive at a common "grade" for the professor's SOF. (This may be true, especially if the professor has not lived up the expectations of the class or, in particular, the class leader.) Such collusive practices only serve to support faculty reservations about the accuracy of the students' evaluations.

Another study, by Robert R. Read of the Naval Postgraduate School, revealed that the effects of two factors other than the professor's actual teaching ability, student group and the particular course, enter into the SFE ratings. Read found through analysis of variance that, of these three factors, the effect of the course was of supreme importance; and, surprisingly enough, the effect of the student group also surpassed the effect of the professor. Professor Read concluded that Item 12 of the NPS SOF (overall rating of instructor) does not measure what it claims to measure because of the strong course and student-group components of variation in response to this particular item. [Ref. 21]

In spite of this lack of confidence in the validity of student-faculty evaluations, they are often the only

available measure of teaching effectiveness; and professors and administrators are therefore led to rely upon them. This reliance is evidenced by the frequent use of student-faculty evaluations for pay, promotion, and tenure purposes. Wilson, Gaff, and Bavry (1970) surveyed one thousand faculty members from six schools regarding the criteria that are used by college administrators in making advancement decisions. Ninety-two percent of those surveyed felt that teaching effectiveness should be quite important or very important in promotion decisions, although only 38% stated that teaching effectiveness actually is considered important to this extent in advancement decisions. Seventy-two percent of the faculty members surveyed felt that a formal evaluation procedure should be instituted at their schools. [Ref. 22] Of course, research and publications play an important role in these decisions; however, there are no formal quantitative methods of evaluation used at NPS to measure these particular components of professor performance.

Although the SOF covers a wide variety of items, there is a noted tendency to concentrate on SOF Item 12, the overall rating of the instructor. In particular, Item 12 is relied upon by some department chairmen as a "quick and dirty" overview of the professors' teaching capabilities. Not unlike notification of students who make the Dean's List, congratulatory letters are sent to NPS faculty whose mean score on this

particular item is high. In fact, at least one department at the Naval Postgraduate School rank-orders its professors based solely on their mean Item 12 score. This practice may be a self-defeating one because of the potential detriment to the morale and self-esteem of professors who rank low.

Such great emphasis on the Student Opinion Forms has prompted professors to resort to manipulative practices to obtain higher SOF scores from students. In one specific example, a professor deliberately failed to teach a particularly difficult portion of a course in an effort to enhance his SOF scores. It was his announced perception that higher SOF scores might lead to a step (merit) increase in salary. Rodin and Rodin's study found that students rate most highly those professors from whom they learned the least, thus supporting this professor's premise. [Ref. 23]

It was found that the professors of the NPS departments that typically had the highest mean scores for SOF Item 12 made a specific point of informing their students that the SOF's were used for pay, promotion, and tenure decisions. Identical results were obtained in a study at the University of Wisconsin, Green Bay, where researchers found "SFE ratings increased in all evaluation factors when students were informed that the SFE is used for salary, promotion, and retention . . . ." [Ref, 24]

B. APPROACH

The professor questionnaire was distributed to all Administrative Sciences professors who were teaching classes of five or more students, one questionnaire per class section. Fifty questionnaires were disseminated, and 38 completed questionnaires were returned, a return rate of 76%. The questionnaire consisted of 23 questions, 21 multiple choice and two fill-in-the-blank.

It was the authors' intention to poll the professors on their beliefs and opinions regarding the Student Opinion Forms. The questions ranged from general ones about the course, the students in the class, and the class section leader to personal questions pertaining to academic rank and tenure. There were also questions regarding the purpose and usefulness of the SOF and the amount of weight SOF's should carry in pay, promotion, and tenure decisions. Appendix D contains a copy of the actual questionnaire and the frequencies with which the professors selected each item option. The following is a synopsis of the professors' responses to the questionnaire:

* Of the professors who completed the questionnaires, 21% were teaching Financial Management courses, 16% each were teaching Manpower/Personnel Management, Organizational Effectiveness, and Economics/Accounting courses, 11% Information Systems, and 10% other courses.

* The majority of the students in the classes whose professors were surveyed were in the Manpower/Personnel/Training Analysis, Financial Management, or Computer Systems curricula.

* Seventy-six percent of the professors queried were not aware of who the class section leader was.

* Of those who were cognizant of the section leader's identities, nearly 60% anticipated those student leaders to fall in the top half of the class, gradewise. Most of the professors did not feel that the section leaders had much influence over the other students in the class.

* Nearly all professors (85%) thought the students liked their courses at least fairly well, and 95% enjoyed teaching their courses.

* Over half of the professors surveyed had been at the Naval Postgraduate School less than three years, and most (76%) did not have tenure.

* Seventy-nine percent of the professors were teaching courses that they considered to be in their area of professional expertise.

* Well over half of the respondents believed that SOF forms currently carried no more than 40% of the weight in pay, promotion, and tenure decisions; 13% had no idea.

* Seventy-four percent of the faculty believed that the SOF should carry no more than 40% of the weight in pay, promotion, and tenure decisions.

* The preponderance of professors did not feel that SOF's actually measure teaching effectiveness to any great extent, and they only found SOF's somewhat useful in improving their own teaching effectiveness; in fact, only 14% of the faculty believed that the SOF measures teaching effectiveness to a large or a very large extent.

C. METHODOLOGY

In addition to general interest in the professors' knowledge and opinions about the SOF, the authors also hoped to predict each professor's mean SOF Item 12 score, by course segment, based on his/her questionnaire responses.

It was the authors' hypothesis that a combination of selected factors from the questionnaire would have the capability of explaining a large proportion of the variation in SOF Item 12 scores.

Aggregated data were obtained from the Student Opinion Forms completed by the students in the classes for which the professors returned questionnaires. Hence, the authors were able to join the required data from both sources to perform this statistical analysis.

The Statistical Package for the Social Sciences (SSPS), a system of computer programs designed specifically for use in analyzing data from the social sciences, was utilized in the study. SPSS allowed for the treatment of missing values, which was of great benefit in this study because of the small initial sample size and the considerable number of missing values. Two of the questions in the survey represented categorical rather than quantitative variables, so the SPSS Breakdown program was used to replace the qualitative responses by their Item 12 means to provide a usable, numerical format. The Breakdown program allows the user to obtain means, standard deviations, and variances of a numeric dependent variable for each category of an independent variable. In the case of Question 1 of the professor questionnaire, "What is the general subject area of this course?", Breakdown provided the mean SOF Item 12 score for all professors who selected each offered response. For example, the mean SOF Item 12 score for all professors who

responded that they were teaching Manpower/Personnel Management courses was 4.13 on an integer scale of 0 to 5 (0 being "N/A", 5 being "outstanding").

Once the questions were all in a quantitative format, 15 of the 23 were selected as independent (predictor) variables for use in the statistical analysis. SOF Item 12 was the dependent (criterion) variable. In the first regression, the 15 independent variables selected consisted of both "structural" and "subjective" questions. The "structural" questions were identified as those over which the professor had little or no control, such as class size, number of courses he/she was teaching that quarter, or general subject area of the course. The "subjective" questions were defined as those in which the professors had control, such as knowing who the class section leader/senior officer was, or those questions that requested a judgment or viewpoint, such as whether the professors felt they had good rapport with the students in the class. The second regression involved only ten "structural" independent variables, in addition to SOF Item 12, again, as the dependent variable.

Table I lists the questions from the professor questionnaire. The "structural" questions are followed by (ST), and the "subjective" questions are followed by (SUB). The variables that were included in the regression equations are also followed by an asterisk (*).

Table I

Professor Questionnaire Items

(Q1) What is the general subject area of this course? (ST)*

(Q2) What is the academic level of this course? (ST)*

(Q3) How many students are enrolled in this class? (ST)*

(Q4) What is the curriculum number of the majority of this class? (ST)*

(Q5) Do you know who the section leader or senior officer in this class is? (SUB)*

(Q6) To what extent do you feel the section leader or senior officer has influence over the class in relation to the course or the instructor? (SUB)

(Q7) Gradewise, what quartile do you expect the section leader or senior officer to fall in? (SUB)

(Q8) How well do you think the students generally like this course? (SUB)*

(Q9) How many years have you been on the staff at the Naval Postgraduate School? (ST)*

(Q10) What is your academic rank? (ST)

(Q11) Do you have tenure? (ST)*

(Q12) What step are you presently on the faculty salary schedule? (ST)

(Q13) To what extent do you consider this course to be in your area of professional expertise? (ST)*

(Q14) How many courses (exclusive of labs) are you teaching this quarter? (ST)*

(Q15) How many times have you taught this course prior to this quarter? (ST)*

(Q16) Have you ever taught this student group (plus or minus a few students) before this quarter? (ST)*

(Q17) How well do you like teaching this course? (SUB)*

(Q18) To what extent do you feel that you have good rapport with this class? (SUB)*

(Q19) Do you tend to organize and present this course differently according to the seniority of the student group that you are teaching (e.g., first quarter vs. last quarter thesis students)? (SUB)

(Q20) How much weight (percentage-wise) do you think the SOF's presently carry in pay, promotion, and tenure decisions? (SUB)

(Q21) How much weight (percentage-wise) do you think the SOF's should carry in pay, promotion, and tenure decisions? (SUB)

(Q22) To what extent do you feel SOF's actually measure teaching effectiveness? (SUB)*

(Q23) How useful do you feel the SOF is in improving your teaching effectiveness? (SUB)

Because of the small sample of 38 completed questionnaires that were available for statistical analysis, a stepwise regression was decided upon. This procedure allows a researcher to isolate a small subset of the available independent variables that will result in an optimal prediction equation. The SPSS Stepwise Regression program allows the researcher, in particular, to specify three statistical criteria to be used in determining which predictor variables will be selected. The first parameter stipulates the maximum number of predictor variables that will be included

in the equation. The second parameter identifies the minimum F value (which is automatically computed to test for the significance of the regression coefficient) that the researcher will accept for variables that are to be entered in the regression. The third stipulation specifies the tolerance, or one minus the squared multiple correlation that a candidate independent variable has with the other independent variables already selected. It was decided that a total of five variables would be selected, with the default values for both the F-test (.01) and the tolerance (.001) used so as to minimize the restrictions placed on the stepwise regression.

Missing data for the Breakdown analysis was handled by eliminating only the cases in which the dependent variable was missing. (In all other instances, the case was included.) In the regression analysis, the default option, listwise deletion of missing data, was used. This option automatically deletes all cases in which any missing values occur. Thus, all statistics computed in conjunction with the regression program were based only on the remaining cases. Because of the numerous missing values encountered, the small sample size used in this study was narrowed down to only 28 cases through listwise deletion.

As part of the regression program, a table of correlation coefficients was provided to check for multicollinearity

among the independent variables. It is important to minimize the effects of multicollinearity so as not to confound the relative importance of independent variables entered in the regression equation. With only a few exceptions, there were very low intercorrelations between the predictor variables, the majority falling below 0.35.

The first regression analysis (involving both "structural" and "subjective" variables) entered Question 4 on step one. The F value, indicative of statistical significance, was high, at 18.83, with a very impressive multiple R of 0.65. Thus, with just one variable entered, over 42% of the variation in mean SOF Item 12 scores was explained. Step two entered Question 8, increasing the multiple R to 0.76. Question 1 was included in step three, with a multiple R of 0.79, and step four brought in Question 17, to raise the multiple R to 0.82. Although Question 16 was entered in step five, the F value for this entry was only 0.82. Because of the low statistical significance of this value, only the first four variables were used in constructing the regression equation.

In the second regression analysis (involving only the "structural" variables), Question 4 was, again, the first variable to be entered, with an F value of 18.83 and a multiple R of 0.65. By including Question 3 in the second step and Question 9 in the third step, a cumulative multiple R of 0.69 was attained. This R represents 48% of the variation

in mean SOF Item 12 scores being explained by the three variables, curriculum of students, number of students in the class, and number of years the professor has been on the NPS faculty. The fourth and fifth variables to be entered in the regression analysis, Questions 11 and 16, respectively, were not included in the final regression equation because of their low statistical significance (both F values less than 2.0).

After both regressions were run, the corresponding two regression equations were constructed using the unstandardized regression coefficients (B's) and the constants that were computed in the analysis. The variables predicted from these equations were labeled "PSOF" (predicted SOF), as these were the mean SOF values that could be predicted for each professor based on his/her responses to the selected questions from the survey. Another variable, "RESSOF" (residual SOF), was also calculated by subtracting each professor's predicted mean SOF value (PSOF) from his/her actual SOF Item 12 score. RESSOF indicates the amount by which the actual mean SOF Item 12 score exceeds or falls short of the mean predicted SOF score. The RESSOF indicates a professor's unique contribution to his/her SOF score apart from what could have been predicted by the questionnaire. Table II provides the mean SOF Item 12, PSOF, and RESSOF scores for the 28 cases that were used in the analysis. A positive RESSOF

identifies those cases in which the professor received a higher mean SOF Item 12 score than was predicted by the regression. Conversely, a negative RESSOF indicates that a professor would have been expected to receive a higher mean SOF Item 12 score than he/she actually did.

Table II

PSOF RESSOF
Structural Only

Instructor	SOF Item 12	PSOF	RESSOF
1	4.550	4.397	.153
2	4.870	4.775	.095
3	4.800	4.775	.025
4	3.750	4.217	-.467
5	3.180	4.413	-1.233
6	3.950	4.052	-.102
7	4.000	4.108	-.108
8	3.380	3.546	-.166
9	4.190	4.084	.106
10	4.320	4.084	.236
11	4.090	4.144	-.054
12	3.640	4.074	-.434
13	4.000	3.798	.202
14	3.800	3.798	.002
15	5.000	4.832	.168
16	5.000	4.790	.210
17	4.770	4.371	.399
18	4.950	4.287	.663
19	3.330	3.858	-.528
20	3.720	3.928	-.208
21	4.600	4.238	.362
22	4.170	4.462	-.292
23	4.680	4.678	.002
24	4.800	4.497	.303
25	4.060	4.004	.056
26	4.050	4.494	-.444
27	4.210	3.756	.454
28	4.030	3.704	.326

Structural and Subjective

Instructor	Item 12	PSOF	RESSOF
1	4.550	4.470	.080
2	4.870	4.866	.004
3	4.800	4.866	-.066
4	3.750	4.025	-.275
5	3.180	3.908	-.728
6	3.950	3.822	.128
7	4.000	3.822	.178
8	3.380	3.805	-.425
9	4.190	4.237	-.047
10	4.320	4.237	.083
11	4.090	4.478	-.388
12	3.640	4.197	-.557
13	4.000	3.641	.359
14	3.800	3.641	.159
15	5.000	4.920	.080
16	5.000	5.201	-.201
17	4.770	4.369	.401
18	4.950	4.665	.285
19	3.330	3.796	-.466
20	3.720	3.796	-.076
21	4.600	4.267	.333
22	4.170	3.807	.363
23	4.680	4.741	-.061
24	4.800	4.353	.447
25	4.060	4.033	.027
26	4.050	3.960	.090
27	4.210	4.029	.181
28	4.030	3.922	.108

The final analysis that was performed on these new variables was a Pearson correlation between the RESSOF and the actual mean SOF Item 12 score. This correlation represents the strength of the linear relationship between these two variables, with possible values ranging from -1 for a perfect negative correlation to +1 indicating a perfect

positive correlation. A Pearson correlation of .58 was obtained for the analysis in which both structural and subjective variables were used, and .73 when only the structural variables were entered. These figures indicate how much the mean SOF Item 12 scores reflect the individual contribution of a professor, plus error of measurement. In the correlation which includes both structural and subjective variables, the .58 signifies that, at most, 34% of the variance in the SOF Item 12 scores is attributable to a professor's unique contribution. Likewise, in the analysis of the solely structural variables, at most, 53% of the variance in the SOF Item 12 scores reflects the professor's individual qualities.

D. RESULTS AND APPLICATIONS

The analysis of the professor questionnaire produced some interesting and potentially far-reaching results. The relative variability of the PSOF (predicted SOF) variable, or mean SOF Item 12 score that could be predicted based on the professor's responses to the survey, has some important implications. The finding that 67% of the differences among professors' mean SOF Item 12 scores are attributable to factors not related to teaching effectiveness or the quality of the course diminishes the credence that can be placed in the SOF as a measurement tool. Royce (1956) found in his study that instructors who are entertainers in class,

although their teaching quality may be mediocre, tend to receive higher student-faculty evaluations than those who are not so humorous or personable but who may be extremely effective teachers. [Ref. 25] The inclusion of Question 8, "How well do you think the students generally like this course?", in the second step of the first regression could be partially explained by this tendency. Another potential contribution to the strength of this variable (SOF Item 12) may be how enthusiastic, involved, and interested the professor is in the course. Guthrie (1954) found this to be a factor in how fond the students were of particular instructors. [Ref. 26]

The inclusion of Question 4 (curriculum membership of the class majority) in the first step of the regression implies a difference in SOF scoring based on discipline. Curriculum 857, Organizational Effectiveness, has the highest mean SOF Item 12 scores of all the curricula surveyed (a total of 23). Can this finding be attributed to the superiority of professors in that discipline? Is it a difference in their teaching approach or style? Perhaps students in that field are, by nature, more lenient evaluators. In any case, it appears that there are trends or similar tendencies among students in specific curricula.

Another variable (the fourth) that was important to the variances in Item 12 mean scores, subject area, is not

surprising. Certain subject areas seem to be universally more attractive to students than others. In this study, the professors teaching Logistics/Material Management courses received the highest mean SOF Item 12 scores, at 4.68, with instructors in Financial Management courses following, with a mean of 4.38. Information Systems and Economics/Accounting categories received the lowest mean Item 12 ratings, at 3.8 and 4.0, respectively.

The fifth variable entered in the first regression, "Have you ever taught this student group before this quarter?", is also a reasonable factor in overall professor ratings. The effect of this variable could be directly or inversely related to the professor's evaluation depending on whether the students had had positive or negative experiences in their previous classes with the professor.

In the "structural only" regression, the number of students in the class was strongly related to the mean SOF Item 12 rating a professor received ($r = .35$). This finding is in agreement with many studies on this subject. It has been suggested that students prefer small classes (and therefore rate the professors higher) because they permit greater student-teacher interaction.

Finally, tenure and number of years on the NPS staff were also determinants in student-faculty evaluations. Diverse results have been obtained by the many studies on

this subject. Although Heilman and Armentrout [Ref. 27] found no significant relationship between experience and student ratings, Downie [Ref. 28] found that full professors received higher ratings than did instructors in lower academic ranks. This was true especially on traits such as sense of humor, broad interests, and effective presentation of subject matter.

In addition to the statistical analysis previously discussed, it was decided that crosstabulations should be performed on a few of the variables, just as a matter of interest. The amount of weight an instructor thought the SOF should carry in pay, promotion, and tenure decisions was crosstabulated by the academic rank of the professor. One hundred percent of the professors, associates, and assistants believed that less than 40% of these decisions should be based on SOF score. Forty-five percent of the adjuncts believed less than 20%, whereas 55% thought between 41% and 60% of the weight in management decisions should be based on SOF ratings. Of the military instructors, half selected less than 20% and half between 61% and 80%. Could it be that those with more experience with NPS SOF's have learned (or developed the opinion) that they are not particularly valid or reliable performance measures and should not be trusted in such important career decisions?

Another crosstabulation was executed utilizing the variables, "How well do you think the students generally

like this course?" and "How well do you like teaching this course?" Based on this analysis, it appears that the professors, in general, like teaching the courses more than they think students like taking them!

The results of these analyses can be used in various ways by NPS faculty and administrators, and hopefully they will shed some light on the myriad concerns in regard to the use of SOF's. Perhaps, as a result of this research, the school will have increased awareness of the numerous possible discrepancies and the many seemingly unrelated factors that actually have a considerable impact on student-professor evaluations. This study strongly indicates that great caution be exercised when using the SOF's as a major or exclusive determinant in important decisions such as pay, promotion, and tenure.

If the Student Opinion Forms are to be heavily weighted in significant career decisions, the research results reported here suggest that a professor's ratings may be affected to a considerable extent by the subject area of the course and the student curriculum group that he/she is assigned to instruct, as well as the number of students in the class. Because the department chairman is responsible for the assignment of professors to courses and class sections and can also govern class size, he/she could have a substantial influence on increasing or decreasing a professor's SOF scores.

Another more direct use of the professor questionnaire data would be to review the specific responses of particular professors to the attitude questions. The extent to which they do not enjoy instructing their courses, have good rapport with their students, or feel SOF's improve their own teaching effectiveness may indicate some attitude problems that may be responsible, at least in part, for poor student-professor evaluations.

III. STUDENT QUESTIONNAIRE

A. MOTIVATION

In conjunction with the interest in the professors' viewpoints on SOF's and their effects and uses, attention was also directed toward the students' perceptions. In day-to-day conversation with students at NPS, it became apparent that there was a great lack of understanding about the use and importance of the SOF. Students related a multitude of different experiences they had encountered during the administration of SOF's at the end of their various courses. There were numerous comments/complaints about not having enough time to complete the SOF's and about the professors' wandering around the classrooms looking over students' shoulders. Concern was also expressed about how a student's grade may be affected if the professor were to see the SOF prior to the determination of final course grades. There was noticeable apathy among the students regarding the wasted effort expended in the completion of the SOF. Many students seemed to feel that no one really looked at the SOF's and that they served no function in management decisions.

B. APPROACH

The student questionnaire was distributed to 258 Administrative Sciences students from 23 different curricula. They were completed in class and collected by the researchers

to attain a 100% return rate. The survey contained 20 questions which were answered on a computer formatted answer sheet. The data were processed and collated by McGraw-Hill, Inc., who also provided basic summary statistics.

It seemed important to obtain the students' opinions, attitudes, and understanding of the Naval Postgraduate School's Student Opinion Form in an effort to assess the reliability of the SOF data. The questionnaire items covered personal topics such as age, rank, service, and commissioning source. Also included were opinion questions regarding factors that influence teaching effectiveness, as well as basic knowledge questions about the importance and use of the SOF. Appendix E lists the 20 items from the student questionnaire, the item response options, and the frequencies with which the students responded to each option. Below is a summary of the frequency analysis:

* The majority of students completing the student questionnaire were between the ages of 28 and 36.

* Current rank ranged from 02 to 06, the majority falling into 03 and 04--approximately 86%.

* Commissioning sources varied.

* The majority of students had served between eight and eleven years on active military duty (congruent with rank distribution).

* Completion date of baccalaureate degree varied from three to 20 years ago, with the majority falling in the eight to eleven year range.

* Approximately 70% of the students completing the questionnaire were serving in the U.S. Navy.

* Approximately 70% of the students found classroom layout and seating arrangement at least reasonably important for effective learning.

* Only 10% of the students surveyed understood that the primary purpose and use of the SOF was for pay, promotion, and tenure decisions. One-third felt that the primary use of the SOF was to provide feedback to the professor, only, to help improve teaching effectiveness. Nearly 35% of the students thought the primary SOF use was to give the department chairman an idea of the professor's performance or popularity. Thirteen percent had no idea what the forms were used for.

* Fifty percent of the students felt that the SOF should be for use by the department chairman to evaluate the professor, in conjunction with other performance measures. Three percent felt the SOF's should not be used at all.

* Nearly three-fourths of the students felt that SOF's should carry no more than 40% of the weight in pay, promotion, and tenure decisions.

* For 57% of the students, the primary source of knowledge concerning the use of the SOF was either an individual professor or other students. Twenty-one percent identified no source of information.

* Most students (26%) felt that a written narrative evaluation of a professor by each student would most increase teaching effectiveness. Twenty-four percent responded that class visitation by department chairman or other faculty would produce the best results. Only 14% thought that the current SOF was the most effective evaluation method.

* Forty-two percent of the respondents believed that the professors never saw the SOF's before grades were determined. Thirty-six percent had no idea.

* Fifty-five percent of the students surveyed had always completed SOF's before they knew their final grade. Forty-five percent had, on some occasions, already known their course grade.

* Nearly half of the respondents had completed SOF's outside the class at least once.

* Sixty-five percent of those polled had completed SOF's in the presence of the professor.

* Nearly half the students had, at one time or other, felt that they had not been given enough class time to complete the SOF.

* Most students thought that the average score for all professors in the Administrative Sciences Department on SOF Item 12, the overall rating of the instructor, was between 3.6 and 4.5.

* The majority of students believed that either the professor only, or both the professor and the department chairman, saw the comments on the back of the SOF.

* Eighty percent of the students would have responded the same to the questions on the front of the SOF if they had known that only the professors saw the comments on the back.

C. METHODOLOGY

In addition to general interest in the basic frequencies of responses to the student questionnaires, the researchers thought that some other relevant findings might emerge from further statistical analysis. It was believed that there may be some tendencies, or patterns, to the way in which students responded to the survey questions based on such factors as rank, seniority in the curriculum (i.e., number of quarters completed), and branch of service.

The most fruitful analysis of the student questionnaire data consisted of crosstabulations, or frequency breakouts of responses to one question according to the student's responses to another question. For the most part, in all of the crosstabulations performed, no clearcut division

of responses by seniority, rank, or branch of service was evident. All groups seemed to have similar tendencies in SOF understanding and beliefs, and they predominantly selected the same responses most frequently. There were, however, some interesting findings, which will be discussed below.

In the crosstabulation between Question 8, understanding of the primary purpose and use of the SOF, and number of quarters completed, the majority of all students (regardless of seniority) selected options 3 and 4. These were "feedback to the professor, only" and "to give the department chairman an idea of the professor's performance or popularity," respectively. Only those students in their fifth or sixth quarters seemed to realize that SOF's play an important part in pay, promotion, and tenure decisions. Those students in their first quarter were, understandably, more likely to respond, "I don't know," (37%), than students in any other quarter.

The crosstabulation between Question 11, primary source of knowledge concerning the use of the SOF, and number of quarters completed, again, exhibited no ordinal response differentiation according to seniority. As noted in the previous section, "the individual professors" and "other students" were the most frequent selections. It was of considerable interest to find, however, that more than 20% of third-quarter students, nearly 25% of second-quarter students, and 45% of the first-quarter students had no

source of SOF information. Sixth-quarter students were the only group who had received a considerable amount of information from the department chairman or academic associate.

In review of the crosstabulation of rank with the responses to Question 10, "How much weight do you think the SOF's should carry in pay, promotion, and tenure decisions?", it was interesting to note that officers of the rank 05 (Commanders or Lieutenant Colonels) were the only group who predominantly (45%) felt that SOF's should carry no weight. The majority of students in other ranks believed it should be between one and forty percent.

Lastly, the crosstabulation of Question 6, branch of service, with Question 12, "Which of the following evaluation methods do you feel would most increase teaching effectiveness?", yielded notable results. Of all the services responding, the U.S. Coast Guard and the U.S. Army were the most satisfied with the current SOF. The civilian/foreign military response group would be equally content with either "individual student-professor conferences" or "written narrative evaluations." Again, options 3 and 4, "written narrative evaluation" and "section-leader conference with department chairman," respectively, were the most popular responses across all services.

D. RESULTS AND APPLICATIONS

The data that were obtained from this study strongly support the impressions that came across during informal conversations with Administrative Sciences students. This survey revealed that a common source of information regarding the use, purpose, and importance of SOF's is totally absent. This, in addition to the considerable dispersion of responses as to the understood primary purpose and use of the SOF, implies that students have no uniform comprehension of the use of this reporting process. Stevens (1978) reported that a total lack of student knowledge regarding student-faculty evaluations is not uncommon. [Ref. 29] In his study, several upper level students admitted that they did not know what the SFE was used for, but that they believed it served solely as feedback to the professors. It can also be seen in the NPS students' responses to Questions 13 through 17 and Question 19 that no universal standards, guidelines, or requirements for the administration of SOF's were adhered to by the professors. It is, therefore, imperative that complete information regarding the SOF become general knowledge not only among the students but among faculty members as well.

The fact that only 14% of the respondents felt that the current SOF was the most effective of the evaluation methods listed for increasing teaching effectiveness suggests that this is a topic that bears further review. Since the majority

of students lack faith in the SOF as an evaluation tool, this may imply that a lack of sincerity and genuine effort is being exerted in the completion of SOF's. It is ludicrous to suppose that students will put forth a concerted effort in honestly evaluating a professor if they have no idea what the evaluation is used for, who sees it, and the amount of weight it carries in management decisions--especially if they have no faith in its usefulness.

Fifty percent of the students believed that other performance measures should be used in conjunction with the SOF by the department chairman to evaluate the professor. This finding indicates a feeling that the SOF is inadequate and incomplete. They suggest that a written narrative evaluation of the professor by each student would be the most beneficial method to increase teaching effectiveness, closely followed by class visitations by the department chairman or other faculty. NPS administrators as well as faculty should seriously consider these recommendations, as they may provide more comprehensive and impartial evaluations.

IV. ADDITIONAL SOF ITEMS

A. INTRODUCTION

The third and final section of this research project involved the addition of four questions to the standard NPS Student Opinion Form. Since the SOF's are disseminated quarterly to all NPS students, and the additional four questions requested information relating specifically to each course a student was taking, it was decided that the SOF would be an appropriate vehicle for asking these questions. There are four spaces provided on the SOF (Items 17-20) for additional questions. The four questions added were devised to reflect relationships of Item 12 responses with students' perceptions of the course and of the professor. A sample of approximately 560 provided responses to these items. Since it has become traditional to use Item 12 as an indicator or gauge of the mean responses to the other 15 items, Pearson correlations were performed between the four additional items and Item 12 only. Table III lists the four additional SOF items.

B. MOTIVATION

The responses the students provided to the additional SOF questions were expected to be highly related to their responses on the original SOF items (Items 1-16). In particular, it was anticipated that a student who was expecting

Table III

Additional SOF Items

17. What is your anticipated grade for this course?

18. What is your total cumulative grade point average at the Naval Postgraduate School?

19. Prior to this quarter, what were your expectations of this course in regard to interest, challenge, and potential usefulness in your career?

20. To what extent do you think SOF's are worth your time and effort to fill out?

a high grade would be more likely to rate both the professor and the course higher than those expecting lower grades. It was also predicted that overall grade point average (GPA) would be correlated with the other item responses; however, the researchers would not venture to guess whether this correlation would be positive or negative. It seemed equally reasonable to suppose that the students with higher GPA's would tend to be either harsher graders, as a whole, or more lenient than those with lower GPA's. If students had very high expectations of the course and were disappointed, then they might express their disappointment with exceptionally low SOF ratings. It was assumed that, if the responses to Question 20, "To what extent do you think SOF's are worth your time and effort to fill out?", were predominantly low,

then the students were not spending much time and effort completing the SOF's. If this were the case, it would significantly decrease the validity of the SOF as an evaluation tool; and, therefore, SOF use could be extremely and unfairly detrimental to a professor's career.

C. METHODOLOGY AND RESULTS

The first statistical analysis consisted of the computation of a Pearson correlation between each of the four additional questions and SOF Item 12 (overall rating of the instructor). As was stated previously, the Pearson correlation measures the linear relationship between two variables. Contrary to expectations, all four correlations were quite low. The correlation coefficient between anticipated grade (Question 17) and SOF Item 12 was .10. This result implies that there is little linear relationship between the grade a student expects to receive from a professor and the way he/she rates the professor. Again, there has been considerable research performed in this area, with very diverse results. Both the Guthrie [Ref. 30] and the Cohen and Humphrey [Ref. 31] studies found that there was a high linear relationship between a student's expected grade and the rating given to the instructor. However, Rubenstein and Mitchell [Ref. 32] and Russel and Bendig [Ref. 33] found exactly the opposite, in consonance with the findings of this study, that little correlation existed. Hence, it can be seen that there is little agreement among researchers on this subject.

The lowest correlation obtained in the analysis, and the only negative one (-.07), was between Question 18 (cumulative GPA) and SOF Item 12. This finding discounted the hypothesis that students with high GPA's tend to rate professors differently from those with low GPA's. Supporting this finding were the results of Guthrie (1954), who concluded that students with higher GPA's do not rate professors any differently from students with lower GPA's. [Ref. 34] An analysis performed by the University of Wisconsin--Green Bay Office for Educational Development (1972), using data from the school's Course Comment Questionnaires, also found no correlation between overall GPA and course evaluations. [Ref. 35]

The correlation coefficient for Question 19 (prior expectations of the course) and SOF Item 12 was .25, again indicating little (but certainly notable) correspondence. Finally, the correlation between Question 20 (SOF's worth the time and effort to fill out) and SOF Item 12 was also small, at .13. The results of these correlational analyses are encouraging in that they imply that the validity of the NPS SOF's may not be highly contaminated by the potential biases represented in Questions 17 through 20.

Crosstabulations were also carried out between Questions 17, 18, and 19 and Item 12. This analysis was intended to show how the students who chose each option to these three questions

rated their instructors. As previously discussed, there were no definite patterns to the responses to Item 12 based on the options selected for the three questions (i.e., low correlations). Interestingly, of the eight students who were expecting a C+ or below in their courses (option 0 to Question 17), six of them rated their instructors excellent (option 4 to Item 12). In each response category for all three questions, the great majority of students rated their instructors above average, excellent, or outstanding. Also worthy of mention is the fact that in each response category for questions 17, 18, and 19, the greatest number of students rated their professors outstanding, followed by the number who responded excellent. This trend continued in descending order, with the fewest students rating their professors poor. These statistics imply considerable inflation in the students' evaluations of NPS professors.

Various other correlations were computed in an effort to test hypotheses about relationships between Item 12 and the other variables on the SOF. It was anticipated that the number of quarters a student had completed at NPS would have a bearing on the student's overall rating of an instructor. The correlation obtained was, in actuality, very low, at .07. This result reveals virtually no tendency of overall rating to vary with seniority. Another belief was that a relationship would exist between the overall rating of the instructor

and whether the course he/she was teaching was required or elective. The correlation obtained not only was low, but also negative (-.19). Thus, there was a slight tendency for students taking a course as an elective to rate instructors more leniently than other students. Cohen and Humphreys, in a 1960 study, found evidence to support this finding that teachers of required courses received lower ratings than did teachers of elective courses. [Ref. 36]

There were also correlations run between Item 12 and the other original items on the SOF. The majority of these variables were highly related to Item 12, as Read [Ref. 37] had shown in his study, with the correlations ranging from .41 to .77. (Question 16 was not considered because of the predominance of courses with no laboratory.) This high multicollinearity somewhat reduced the independence of the variables' explanatory power in the regressions reported below.

Contrary to the expectations expressed earlier, there was very little association between the way students answered the additional four SOF items and their responses to the original 16 items. The highest correlation coefficient obtained was .39, but the majority were below .15. This result, again, supports the findings that expected grade, GPA, and expectations of the course do not determine the student's views of course and instructor effectiveness. It

also suggests, in conjunction with the results discussed in the previous paragraph, that SOF Item 12 is a good summary of the other questions.

Several regression analyses were executed, all of them employing SOF Item 12 as the dependent variable. Because of numerous missing values, the automatic listwise deletion of the regression program reduced the sample size to 449 in these analyses. Initially, only the four additional SOF items (Questions 17-20) were regressed on Item 12, for the purpose of determining how much of the variation in Item 12 was due to these items, as a group. The multiple R resulting from the inclusion of all four variables was 0.29, revealing that a very small portion of Item 12 variation (only 8%) was possibly a result of attitudes or conditions reflected by these additional SOF questions.

The second regression, again using SOF Item 12 as the criterion variable, included number of hours taken this quarter (HRS), number of quarters completed (QTRS), whether the course was required or elective (REQELEC), Questions 1-11, and Questions 17-20 as the battery of predictor variables. Though unreported here, various other combinations of predictor variables from the SOF were also regressed on Item 12, and comparable results were obtained. The other four "overall" variables (Questions 13-16) were not included in the regressions.

In this (the second) analysis, the stepwise regression was selected, limiting the number of variables to be included to five. Question 9, "The instructor made this course a worthwhile learning experience," was entered in step one with a multiple R of 0.77 and an F-value of 652. Step two included Question 3, "The instructor seemed to know when students did not understand the material," raising the multiple R to 0.82. Question 1, "The course was well organized," came in on step three, increasing the multiple R only one more notch, to 0.83. Steps four and five included Question 10, "The instructor stimulated my interest in the subject area," and Question 11, "The instructor cared about student progress and did his share in helping us to learn," raising the multiple R, finally, to 0.84. Thus, 71% (84^2) of the diversity in overall instructor ratings is determined by these five variables. In other words, if the students felt the course was a worthwhile learning experience, the instructor was sensitive to the students' understanding of the material, the course had good organization, the instructor was able to interest the students in the subject, and the instructor genuinely cared about student progress and was instrumental in helping them learn, then they were quite likely to consider the professor an effective instructor,

Finally, response frequencies were determined for all 20 SOF questions to obtain an overall distribution of item responses for the Administrative Sciences Department. These

frequencies are contained in Appendix F. Below is a synopsis of the most noteworthy findings from the frequency analysis.

* The mean response for Items 1 through 15 was 3.9.

* The mean response for SOF Item 12 was 4.0. The range was from 2.6 to 5.0 (using mean SOF Item 12 values for each class).

* All questions had a mode (most frequent response) of either 4 or 5, except Questions 16 and 20.

* The items with the highest means were Question 6, "I felt free to ask questions," (mean: 4.5); Question 5, "I had confidence in the instructor's knowledge of the subject," (mean: 4.4); and Question 7, "The instructor was prepared for class," (mean: 4.3).

* Eighty-four percent of the students were expecting a B+ or better in their courses.

* Eighty percent of the students had a cumulative GPA of 3.25 or above.

* Eighty-six percent of the students had moderate to very high expectations of their courses.

* Forty-two percent of the students felt that SOF's were worth their time and effort to fill out only to a moderate extent. This was the response most frequently selected; and it was the cause of Question 20's having the lowest mean, 2.9, of all the SOF items (again, disregarding Question 16).

As can be seen, there is much valuable analysis that can be done on the Student Opinion Form data. This study has only scratched the surface of the research potential in this area. It is very difficult to detect, measure, and analyze factors that may come to bear on a student's perceptions of course and instructor quality. It was the researchers' intention to delve into four of these factors (Questions 17-20)

to determine if they might represent strong biases in the students' evaluations. The results obtained in this brief part of the study were gratifying in that they suggest that NPS students are able to minimize the effects of at least some extraneous factors that may impinge on their impartial evaluation of a professor's effectiveness.

V. CONCLUSIONS AND RECOMMENDATIONS

A. CHARACTERISTICS OF SAMPLE

The Naval Postgraduate School is considered to be a technical institution geared toward the Master of Science level. The curricula range from the "soft" sciences such as Administrative Sciences and National Security Affairs to the "hard" sciences such as the numerous engineering programs.

The students at NPS are not, by many measures, typical graduate students. The median age is between 31 and 33, suggesting a higher maturity level than the average graduate student. The student body is comprised of primarily U.S. military officers, a considerable number of foreign military officers, and a handful of civilians. They are highly structured and disciplined individuals. Although the curricula are all considered extremely rigorous, the highly motivated and competitive nature of the students drives them to excel.

The Naval Postgraduate School's professors are recruited from some of the country's best schools. They are intrigued by the maturity, motivation, and dedication of the students, as well as the school's heavy emphasis on teaching.

The samples used in this research do not claim to be representative of graduate students in general or of instructor populations outside the Naval Postgraduate School;

nor are they representative of the entire Naval Postgraduate School.

B. OVERVIEW OF RESEARCH RESULTS

The following is a recapitulation of the prominent results obtained in each study:

1. Professor Questionnaire

* Sixty-seven percent of the variation in SOF Item 12 scores can be attributed to curriculum of the students, how well the professor thinks the students like the course, the subject of the course, and how well the professor likes teaching the course.

* A professor's ratings may be affected to a considerable extent by the department chairman in that he/she can decide the subject(s) and students groups that the professor teaches as well as the number of students that are in the class section.

* The professors are not well informed as to the importance of SOF's in pay, promotion, and tenure decisions.

* Most professors do not feel that SOF's actually measure teaching effectiveness to a great extent.

* Over one half of the professors surveyed considered SOF's to be only somewhat useful in improving their teaching effectiveness.

2. Student Questionnaire

* It was found that very few students understood the purpose and use of the SOF, and its importance in pay, promotion, and tenure decisions. They were also unclear as to who was authorized access to the SOF information.

* It was also found that the students have no common reliable source (if any) of information regarding the SOF.

* A number of students surveyed felt that other evaluation methods (e.g., class visitation) should be used in conjunction with the current SOF to improve teaching effectiveness.

* The majority of students did not feel that the current SOF was the best method for increasing teaching effectiveness.

* Student responses indicated a lack of comprehensive guidelines for SOF administration and completion.

3. Additional SOF Questions

* A student's anticipated grade for a course had a very low correlation with the overall rating he/she gave the professor (SOF Item 12).

* A student's cumulative GPA had very little relationship with the overall rating he/she gave the professor.

* Students generally tended to have high prior expectations of their courses in regard to interest, challenge, and potential usefulness in their careers.

* The majority of students felt that SOF's were worth their time and effort to complete.

Since this study was fairly limited in scope, the results should be considered only suggestive; nevertheless, they do seem to complement certain findings previously discussed.

C. DISCUSSION OF SFE FACTORS

Presently, the major defense for defining quality teaching in terms of high ratings on the student evaluation forms is based on an analogy between the student and the consumer. The student may be in the best position to evaluate the professor's teaching effectiveness since he/she is the main consumer of the professor's product, namely, education. In addition to this belief, the ease of distribution to the students, as well as the extent to which

student-faculty evaluation is already used in colleges and universities throughout the country, tends to justify their continued use as a primary method of enhancing teaching effectiveness.

It is important that student views be widely solicited in the form of SFE, although no one suggests that students are an infallible judge of instructor competence. Caution should be exercised to avoid sole dependence of performance evaluation on quantifiable SFE's. Frequently, these evaluations are considered more important and reliable than others, strictly because they are quantitative and can be processed by a computer. It should be noted, however, that a comprehensive evaluation process entails the observation of multiple performance measures, weighing and balancing them against each other, and ranking their importance in terms of the goals and objectives of the institution.

For many years there has been a nearly universal perception that publication output has been the primary factor in promotion decisions. Indeed, there has been found to be a high correlation between academic rank and publication output rate. This finding has been the subject of much criticism. Is it possible that the reward system within higher education requires a professor to "publish or perish"? Certain observations definitely support this premise. Higher status in graduate schools is conferred upon accomplished

research-scholars rather than instructor-scholars. In reference to this belief, a student was quoted:

> I came to graduate school wanting to be a liberal arts teacher. I now want to do research. I consider this is a moral decline on my part but I have learned that research is where the money, the prestige and the mobility are. [Ref. 38]

At smaller schools, new faculty, who see themselves as temporary employees, place great emphasis on research as a means of professional survival. The large universities, which do place primary emphasis on publication, exert a tremendous influence on those schools that do not. As a result of this influence, professors aspiring to eminence generally sense the pressure to publish, regardless of institutional affiliation.

Although faculty administrators bear responsibility for knowledge of the staff's teaching ability, many obstacles exist to hinder this awareness. Administrators typically do not have the time to personally observe every professor's teaching capabilities, especially if the department is large. If the department chairman is able to make one or two class visits, this visitation may be sufficient to judge certain elements of teaching, but it is not basis to make a comprehensive evaluation. It cannot be assumed that elements such as number of classes taught, class size, or number of thesis advisees necessarily correspond to high quality instruction. Although the majority of professors are uncomfortable with classroom visitations and resent being "watched over,"

many administrators consider this technique a very important element in evaluation. However, the department chairman may not be the most qualified judge of effective teaching. In addition, viewpoints solicited from other faculty members within the department may be prejudiced, may represent an inadequate sample, and frequently may be merely hearsay. These inherent factors create serious weaknesses in a system that relies heavily on teaching evaluations, as traditionally made by the department chairman or other faculty members.

Circumstances beyond the professor's control may adversely affect his/her student ratings. Conditions such as heavy workload, large classes, being assigned to teach courses that are not in his/her area of professional expertise, or teaching a newly designed or particularly difficult course may greatly influence the evaluations a professor receives. Likewise, characteristics that are peculiar to the individual student may influence the evaluation. Variables such as the student's natural attraction to the subject matter, his/her need to compensate for poor grades, or whether the course is required or an elective may also have an effect. It has also been found that students' evaluations tend to reflect the personal and social characteristics of an instructor, "who he is" rather than "what he does." [Ref. 39]

On occasion, situations occur in which there exists a severe personality conflict between a student and a professor. In cases such as this, a professor may receive an

unjustly low student rating based on this student's hostility, a rating in no way related to his/her teaching quality. A few very low scores may severely lower a good professor's mean rating, and may well be a detriment to his/her career.

Another point of concern is the handling of "N/A" or "No Comment" responses. If they are not disregarded or treated as missing values, they may inadvertently penalize the professor. Therefore, administrators should be encouraged to assess the total distribution of responses to student-faculty evaluation items, and not just the mean overall score. Unfortunately, many such factors that are beyond the professor's control are not taken into consideration; and the professor is frequently penalized unfairly because of them. As a result, the professor may be forced to offer only "safe and familiar" instruction.

Students evaluate a course based on their present experience, but do not look at the potential benefits that may be realized at a later date. It has been found that students, if given another opportunity later to rate professors, would give them higher scores now than they did when they took the course.

In conclusion, the above circumstances, which are inherent in any educational system, should be considered potentially problematic; and, when they exist, they should be brought to the attention of school administrators.

D. RECOMMENDATIONS

The following recommendations are derived from the results of this study, as well as from suggestions solicited from students, faculty, and administrators.

1. This study has suggested a definite need for a more comprehensive explanation of the use and purpose of the SOF. Information regarding the SOF's role in pay, promotion, and tenure decisions should be widely publicized. A simple remedy might be the presentation of this information at a quarterly Superintendent's Lecture which is mandatory for all new students. Another possibility might be the dissemination of this information at a lower level, such as department or curriculum indoctrinations or "Welcome Aboard" meetings or printed on the SOF itself.

2. Standardized instructions for the completion of the SOF must be reiterated every quarter to ensure compliance and to alleviate the current serious editing problem.

3. In order to collect a larger and more representative sample, questionnaires similar to the ones used in this research should be administered to the entire NPS faculty and student body. Additionally, further in-depth analysis of SOF data is called for. There is a vast amount of potential analysis that has yet to be tapped in this area.

4. Information that the SOF provides would be considerably more helpful to professors than currently if they were counselled upon receipt of this feedback by the department chairman or another, knowledgeable faculty member. With counselling, negative feedback and criticism can result in positive action rather than a debilitating emotional issue.

5. It is imperative that the professors be fully aware of the implications of the ratings received on the SOF's. If there is no differentiation in the action taken by the administration when a professor receives a 3.0 rating as opposed to a 5.0, then there may be no incentive for the professor to pursue excellence in teaching. There must be a reward or incentive system that is directly related to the evaluation system.

6. It would be very beneficial to have an informal midquarter evaluation to be used as an early indicator of the students' initial impressions of the quality of the professor's teaching. This evaluation would only be seen by the professor, and would allow time for corrections and improvements to be made during the same quarter so that the current class could benefit from their own suggestions. A recommended format for this midquarter evaluation would be a written narrative evaluation from each student. This evaluation would pinpoint specific problems that may exist, and would provide a much more personal form of feedback.

7. Results from the student questionnaire revealed that students prefer the use of alternative forms of teacher evaluation in conjunction with the current SOF. More specifically, they suggest class visitation by the department chairman or other faculty member, a written narrative evaluation, and videotaping of class sessions. If class visitation is simply not feasible because of time constraints, then videotaping might be a preferred alternative, as some departments already possess audio-visual equipment.

8. The handling of "N/A" and "No Comment" responses should be investigated to ensure that the professors are not being penalized by them. Since these responses are treated as "0" on a "0" to "5" integer scale, then their inclusion in the statistical computation or mean scores would considerably decrease the professors' ratings.

9. The rewriting of the current SOF to be a more flexible and comprehensive evaluation tool than it now is should be seriously considered. The current SOF is regarded by some as too structured because all the administration sees is the 16 questions on the front; and these questions do not necessarily cover every facet of teaching effectiveness. For example, where is excessive homework or a professor's condescending attitude indicated on the SOF? An evaluation form that is subdivided into different categories should be constructed. The professor would be evaluated only on those factors over which he/she has control, and which are not vulnerable to the student's individual idiosyncracies. For instance, an item such as how well the student likes the subject is a matter of personal preference over which the professor has limited control. Additionally, the current heavy reliance on the professor's overall rating (SOF Item 12) can be dangerous in that this

may be only a manifestation of the student's emotional reactions to the entire course. Much of it is not related to the professor or his/her teaching, or more importantly, to the amount the student has learned.

10. It has been suggested that the last question on the SOF read, "Do you have any comments that you would particularly like the department chairman to see?" If the student responded yes to this question, then it would prompt the department chairman to read the "comments" section.

11. It has also been suggested that the number of options for each SOF item be reduced from five to three (in addition to the "N/A" and "No Comments" options), as most students are reticent to rate a professor one or two (i.e., poor or fair).

12. Another recommendation is that two forms of teaching evaluation be instituted at NPS, one strictly to be used as feedback to the professor (qualitative), and a second for use in administrative decision making (quantitative).

13. In addition to being quantitatively evaluated on teaching proficiency, a professor should also receive a comparable evaluation for his/her research and publication efforts.

14. As a final note, it is imperative that all elements of a professor's work--teaching performance, research, and publication--be taken into consideration when making administrative decisions.

APPENDIX A

STUDENT OPINION FORM

COURSE NO. _____ SEGMENT _____

INSTRUCTOR NAME _____

STUDENT OPINION FORM
11NO NPS 5040/2 (REV 5-83)

PLEASE USE SOFT BLACK PENCIL ONLY — DO NOT USE INK.

REPORT NO. | SUB-S.O.F. No. | S.O.F. No. | CUR-SPECIALTY NUMBER | HRS THIS QTR | QTRS COMPT'D

FOR ME THIS COURSE IS:
REQUIRED.... ①
ELECTIVE..... ②

	STRONGLY AGREE	AGREE	NO STRONG OPINION	DISAGREE	STRONGLY DISAGREE	NO COMMENT
1. The course was well organized	⑤	④	③	②	①	⓪
2. Time in class was spent effectively	⑤	④	③	②	①	⓪
3. The instructor seemed to know when students didn't understand the material	⑤	④	③	②	①	⓪
4. Difficult concepts were made understandable	⑤	④	③	②	①	⓪
5. I had confidence in the instructor's knowledge of the subject	⑤	④	③	②	①	⓪
6. I felt free to ask questions	⑤	④	③	②	①	⓪
7. The instructor was prepared for class	⑤	④	③	②	①	⓪
8. The instructor's objectives for the course have been made clear	⑤	④	③	②	①	⓪
9. The instructor made this course a worthwhile learning experience	⑤	④	③	②	①	⓪
10. The instructor stimulated my interest in the subject area	⑤	④	③	②	①	⓪
11. The instructor cared about student progress and did his share in helping us to learn	⑤	④	③	②	①	⓪

PLEASE USE THE FOLLOWING SCALE FOR THE NEXT FIVE ITEMS:
5. Outstanding (Among the top 10%) 2. Fair (In the lowest 30%)
4. Excellent (Among the top 30%) 1. Poor (In the lowest 10%)
3. About Average (Middle 40%) 0. Not Applicable/Don't know/There were none

	O	E	A	F	P	NA
12. Overall, I would rate this instructor	⑤	④	③	②	①	⓪
13. Overall, I would rate this course	⑤	④	③	②	①	⓪
14. Overall, I would rate the textbook(s)	⑤	④	③	②	①	⓪
15. Overall, I would rate the quality of the exams	⑤	④	③	②	①	⓪
16. Overall, I would rate the laboratories	⑤	④	③	②	①	⓪

USE SPACE BELOW AND ON REVERSE SIDE FOR FREE FORM COMMENTS. IDENTIFY BY QUESTION NUMBER WHEN APPROPRIATE. These free form comments will be available only to the instructor.

THESE FOUR SPACES ARE AVAILABLE IF THE INSTRUCTOR WISHES TO SUPPLY ADDITIONAL QUESTIONS.

17. ⑤	④	③	②	①	⓪
18. ⑤	④	③	②	①	⓪
19. ⑤	④	③	②	①	⓪
20. ⑤	④	③	②	①	⓪

4529-ODF-94331

APPENDIX B

STUDENT COUNCIL MEMORANDUM

MAY 78

STUDENT OPINION FORM

The Student Council would like you to know the following facts about the Student Opinion Form (SOF):

What is the SOF?

The SOF is the machine-readable form filled out by each student at the end of each quarter in each course.

Is the SOF important?

The SOFs (in summary form) are used by the Department Chairmen to assist in identifying Faculty members for pay raises and in tenure considerations. The SOFs are used by the individual instructor to improve individual teaching techniques and improving course material.

How does the SOF system work?

Each student fills out a form in every course. The forms are collected and machine read, storing the total data. A statistical report is formed from this data for each professor and is forwarded to his Department Chairman. The Chairman uses this statistical data to assist in the evaluation of the teaching ability of each professor. The original form with its free hand comments intact is returned to the professor concerned.

What are the problems?

Casual preparation is a major problem which can be corrected by the students. Such seemingly inconsequential errors as illegibility, not using a #2 pencil, failure to complete all blocks or answer all questions, not to mention flippant or insincere remarks, all degrade the worth of the form both to instructors and to the Department Chairman. Insufficient time for preparation of the form is a problem which should be a matter of concern both for section leaders and professors. Cooperation is the key here. The correct interpretation of the "Quarters Completed" block is to include the present quarter as one completed.

What has been learned from the SOF data analyzed to date?

From the small amount of useful data, the following trends are clear:

a. Students have high confidence in the instructors' knowledge of the subject area.

b. Students have a universally low opinion of the examinations.

c. There does not appear to be a correlation between the grades given for the course and the rating of the professor by the students.

d. In general, the professors who get the "best" marks from the students are the ones who teach the most "popular" courses.

THE STUDENT COUNCIL BELIEVES THAT THE STUDENT VOICE IN THE ADMINISTRATION OF THE FACULTY (IN THE FORM OF THE SOF) SHOULD BE SUSTAINED AND THAT IT IS THE STUDENT'S RESPONSIBILITY TO GIVE THIS IMPORTANT FEEDBACK VEHICLE THE ATTENTION THAT IT DESERVES. IF WE RENDER A CASUAL OPINION, IT WILL COME TO BE CASUALLY REGARDED.

The Student Council welcomes your comments through your Representative.

APPENDIX C

SOF RETURN RATE

ADMINISTRATIVE SCIENCES DEPARTMENT
SOF RETURN RATE TABLES

	Q1,AY'77	Q2,AY'77	Q3,AY'77	Q4,AY'77
TOTAL SENT	672	947	788	734
NO. RETURNED	505	760	488	397
RETURN RATE %	75%	80%	62%	54%

	Q1,AY'78	Q2,AY'78	Q3,AY'78	Q4,AY'78
TOTAL SENT	803	833	963	825
NO. RETURNED	600	613	807	627
RETURN RATE %	75%	74%	84%	76%

	Q1,AY'79	Q2,AY'79	Q3,AY'79	Q4,AY'79
TOTAL SENT	910	1023	1037	1030
NO. RETURNED	727	834	798	638
RETURN RATE %	80%	82%	77%	62%

	Q1,AY'80	Q2,AY'80	Q3,AY'80	Q4,AY'80
TOTAL SENT	976	1009	982	820
NO. RETURNED	762	664	715	532
RETURN RATE %	78%	66%	73%	65%

	Q1,AY'81	Q2,AY'81	Q3,AY'81	Q4,AY'81
TOTAL SENT	964	774	768	707
NO. RETURNED	674	525	661	512
RETURN RATE %	70%	68%	86%	72%

	Q1,AY'82	Q2,AY'82	Q3,AY'82	Q4,AY'82
TOTAL SENT	853	955	937	848
NO. RETURNED	586	703	784	700
RETURN RATE %	69%	74%	84%	83%

	Q1,AY'83	Q2,AY'83	Q3,AY'83	Q4,AY'83
TOTAL SENT	1125	1212	1111	942
NO. RETURNED	973	911	986	854
RETURN RATE %	86%	75%	89%	91%

	Q1,AY'84	Q2,AY'84
TOTAL SENT	899	1252
NO. RETURNED	778	1057
RETURN RATE %	87%	84%

APPENDIX D

PROFESSOR SOF QUESTIONNAIRE

The following questionnaire is part of a thesis project that will provide information on the administration and use of Student Opinion Forms. This questionnaire will be used in conjunction with an associated questionnaire which has been distributed to Administrative Sciences students. As this questionnaire will be used strictly for research purposes, we request that you do not identify yourself on this form.

We would greatly appreciate your objective responses to the following twenty-three questions. Please circle your responses or fill in the blanks, as appropriate. A separate questionnaire should be completed for each class segment that you are teaching this quarter.

1. What is the general subject area of this course?
   - 16% (a) Manpower/Personnel Management
   - 21% (b) Financial Management
   - 16% (c) Organizational Effectiveness
   - 0% (d) Probability/Statistics/Operations Research
   - 11% (e) Information Systems
   - 16% (f) Economics/Accounting
   - 10% (g) Logistics/Material Management
   - 10% (h) Other

2. What is the academic level of this course?
   - 13% (a) 1000-2000
   - 87% (b) 3000
   - (c) 4000

3. How many students are enrolled in this class?

   Ranged from 5 to 46

4. What is the curriculum number (e.g., 847) of the majority of this class?

   360, 365, 366, 367, 620, 815, 827, 837, 847, and 857

5. Do you know who the section leader or senior officer in this class is?
   - 24% (a) Yes
   - 76% (b) No (If no, then go to question #8.)

6. To what extent do you feel the section leader or senior officer has influence over the class in relation to the course or the instructor?
   0% (a) Very great extent
   3% (b) Large extent
  29% (c) Moderate extent
  13% (d) Small extent
  18% (e) Very small extent
  11% (f) No extent
  26% (g) N/A

7. Gradewise, what quartile do you expect the section leader or senior officer to fall in?
  24% (a) Top
  34% (b) Second
  16% (c) Third
   2% (d) Bottom
  24% (e) N/A

8. How well do you think the students generally like this course?
   8% (a) Extremely well
  32% (b) Very well
  45% (c) Fairly well
  13% (d) Not very well
   0% (e) Not at all

9. How many years have you been on the staff at the Naval Postgraduate School?
  18% (a) Less than one year
  40% (b) One to three years
  13% (c) Three to five years
   5% (d) Five to seven years
  24% (e) Seven or more years

10. What is your academic rank?
  18% (a) Professor
  16% (b) Associate
  21% (c) Assistant
  29% (d) Adjunct
  16% (e) Military Instructor

11. Do you have tenure?
  24% (a) Yes
  76% (b) No
      (c) Not applicable

12. What step are you presently on the faculty salary schedule?

0%	(a)	1-5	21%	(e)	21-25	8%	(i) 41-45
0%	(b)	6-10	2%	(f)	26-30	11%	(j) 46-50
0%	(c)	11-15	11%	(g)	31-35	2%	(k) 51-55
0%	(d)	16-20	13%	(h)	36-40	0%	(l) 56-60

32% missing

13. To what extent do you consider this course to be in your area of professional expertise?

61% (a) Very great extent
18% (b) Large extent
11% (c) Moderate extent
5% (d) Small extent
5% (e) No extent

14. How many courses (exclusive of labs) are you teaching this quarter?

21% (a) One
63% (b) Two
16% (c) Three
0% (d) Four or more

15. How many times have you taught this course prior to this quarter?

24% (a) Zero
25% (b) One
11% (c) Two
11% (d) Three
29% (e) Four or more

16. Have you ever taught this student group (plus or minus a few students) before this quarter?

24% (a) Yes
76% (b) No

17. How well do you like teaching this course?

37% (a) Extremely well
45% (b) Very well
13% (c) Fairly well
5% (d) Somewhat well
0% (e) Not at all

18. To what extent do you feel that you have good rapport with this class?

34% (a) Very great extent
45% (b) Large extent
18% (c) Moderate extent
3% (d) Small extent
0% (e) Very small extent

19. Do you tend to organize and present this course differently according to the seniority of the student group that you are teaching (e.g., first-quarter vs. last-quarter thesis students)?

24% (a) Yes
37% (b) No
39% (c) Not applicable

20. How much weight (percentage-wise) do you think the SOF forms presently carry in pay, promotion, and tenure decisions?

29% (a) 0-20%
32% (b) 21-40%
26% (c) 41-60%
0% (d) 61-80%
0% (e) 81-100%
13% (f) No idea

21. How much weight (percentage-wise) do you think the SOF forms should carry in pay, promotion, and tenure decisions?

40% (a) 0-20%
34% (b) 21-40%
16% (c) 41-60%
10% (d) 61-80%
0% (e) 81-100%

22. To what extent do you feel SOF's actually measure teaching effectiveness?

3% (a) Very large extent
10% (b) Large extent
45% (c) Moderate extent
37% (d) Small extent
5% (e) Very small extent

23. How useful do you feel the SOF is in improving your teaching effectiveness?

3% (a) Extremely useful
13% (b) Very useful
66% (c) Somewhat useful
5% (d) Not very useful
13% (e) Not useful at all

SAMPLE SIZE = 38

APPENDIX E

STUDENT SOF QUESTIONNAIRE

The following questionnaire is part of a thesis project that will provide information on the administration and use of Student Opinion Forms. As this questionnaire will be used strictly for research purposes, we request that you do not identify yourself on the answer sheet. We will be using the SOF as the answer sheet for this questionnaire.

Please complete the following boxes at the top of the SOF answer sheet:

Cur-Specialty Number (e.g., 847)
Hrs This Quarter
Qtrs Completed (including this quarter)

Disregard the preprinted SOF question and answer the following twenty questions in the appropriately numbered spaces on the SOF answer sheet. Please fill in one response for each question.

We greatly appreciate your time and effort in assisting us in our research.

1. What is your present age?
   - 6% (5) 27 or younger
   - 24% (4) 28-30
   - 28% (3) 31-33
   - 24% (2) 34-36
   - 14% (1) 37-39
   - 4% (0) 40 or older

2. What is your current rank?
   - 0% (5) 01
   - 4% (4) 02
   - 45% (3) 03
   - 41% (2) 04
   - 8% (1) 05
   - 2% (0) Civilian

3. What is your commissioning source?
   - 17% (5) One of the U.S. military academies or the Citadel
   - 21% (4) Reserve Officer Training Corps (ROTC)
   - 44% (3) Officer Candidate School or Officer Training School (OCS, OTS) or NESEP or AOCS
   - 3% (2) Officer Indoctrination School (OIS) or direct commission

13% (1) Foreign military
2% (0) Not applicable

4. How many years have you served on full-time active military duty?
1% (5) 0-3
25% (4) 4-7
40% (3) 8-11
22% (2) 12-15
9% (1) 16-19
3% (0) 20 or more

5. How many years ago did you receive your baccalaureate degree?
1% (5) 0-3
24% (4) 4-7
41% (3) 8-11
24% (2) 12-15
9% (1) 16-19
1% (0) 20 or more

6. What service are you in?
68% (5) U.S. Navy
8% (4) U.S. Army
0% (3) U.S. Air Force
8% (2) U.S. Marine Corps
4% (1) U.S. Coast Guard
12% (0) Foreign military or civilian

7. How important do you consider classroom layout and seating arrangement to effective learning?
10% (5) Extremely important
30% (4) Very important
32% (3) Reasonably important
12% (2) Mildly important
12% (1) Not very important
4% (0) Not a consideration

8. What is your understanding of the primary purpose and use of the SOF?
3% (5) For the superintendent to evaluate the professor
35% (4) To give the department chairman an idea of the professor's performance or popularity
33% (3) As feedback to the professor, only, to help improve teaching effectiveness
10% (2) For pay, promotion, and tenure decisions
6% (1) To influence the decision to keep, change, or delete the course
13% (0) I have no idea.

9. What do you think the SOF should be used for?

21%	(5)	As a general feedback instrument for the professor's use only
50%	(4)	For use by the department chairman to evaluate the professor, in conjunction with other performance measures
3%	(3)	To rank a professor among other professors within the department
9%	(2)	For pay, promotion, and tenure decisions
14%	(1)	To influence the decision to keep, change, or delete the course
3%	(0)	SOF's should not be used at all.

10. How much weight do you think the SOF's should carry in pay, promotion, and tenure decisions?

13%	(5)	0%
34%	(4)	1-20%
26%	(3)	21-40%
16%	(2)	41-60%
8%	(1)	61-80%
3%	(0)	81-100%

11. What is the primary source of your knowledge concerning the use of the SOF?

4%	(5)	Curricular officer
7%	(4)	Department chairman/academic associate
34%	(3)	Individual professor
10%	(2)	Welcome aboard/NPS indoctrination meetings
24%	(1)	Other students
21%	(0)	None

12. Which of the following evaluation methods do you feel would most increase teaching effectiveness?

14%	(5)	Individual student conferences with the professor
17%	(4)	Section leader conference with department chairman
26%	(3)	Written narrative evaluation of professor by each student
24%	(2)	Class visitation by department chairman or other faculty
5%	(1)	Video-taping of class
14%	(0)	Current SOF

13. Do you think the professor sees the SOF's before grades are determined?

3%	(5)	Yes, always
9%	(4)	Frequently
7%	(3)	If he/she requests to see them
3%	(2)	If he/she has the permission of the department chairman
42%	(1)	No, never.
36%	(0)	I have no idea.

14. What percentage of your time at NPS have you completed SOF's after you have known your course grade?

55%	(5) 0%
26%	(4) 1-20%
6%	(3) 21-40%
3%	(2) 41-60%
2%	(1) 61-80%
8%	(0) 81-100%

15. What percentage of your time at NPS have you completed SOF's outside of class?

58%	(5) 0%
28%	(4) 1-20%
2%	(3) 21-40%
2%	(2) 41-60%
3%	(1) 61-80%
7%	(0) 81-100%

16. What percentage of your time at NPS have you completed SOF's in the presence of the professor?

35%	(5) 0%
32%	(4) 1-20%
10%	(3) 41-60%
8%	(2) 41-60%
7%	(1) 61-80%
8%	(0) 81-100%

17. What percentage of your time at NPS have you felt that you have not been given enough time to complete the SOF?

51%	(5) 0%
24%	(4) 1-20%
6%	(3) 21-40%
8%	(2) 41-60%
3%	(1) 61-80%
8%	(0) 81-100%

18. What do you think the average score for all professors in the Administrative Sciences Department is on SOF Question 12, "Overall, I would rate this instructor. . ."?

6%	(5) 4.6-5.0
38%	(4) 4.1-4.5
38%	(3) 3.6-4.0
15%	(2) 3.1-3.5
3%	(1) 2.6-3.0
0%	(0) 2.5 or below

19. Who do you think sees the comments on the back of the SOF's?

32%	(5) Only the professor
3%	(4) Only the department chairman
4%	(3) The department chairman and the academic associate

43% (2) The professor and the department chairman
1% (1) The professor and the superintendent
17% (0) The professor, academic associate, department chairman, and superintendent

20. If you knew that only the professor saw the comments on the back of the SOF's, would you answer the questions on the front differently (either higher or lower)?
2% (5) Yes, a lot higher
4% (4) Yes, a little higher
80% (3) No, I'd answer them about the same.
5% (2) Yes, a little lower
3% (1) Yes, a lot lower
6% (0) I don't know.

SAMPLE SIZE = 258

APPENDIX F

FREQUENCIES OF SOF RESPONSES

Q1--The course was well organized.

Code	Freq	Percent
0	1	0.1
1	16	2.1
2	51	6.6
3	94	12.2
4	353	45.9
5	252	32.8
Missing Values	2	0.3
Total	769	100.0

Mean: 4.005 Mode: 4.000

Q2--Time in class was spent effectively.

Code	Freq	Percent
0	0	0.0
1	21	2.7
2	61	7.9
3	123	16.0
4	319	41.5
5	244	31.7
Missing Values	1	0.1
Total	769	100.0

Mean: 3.917 Mode: 4.000

Q3--The instructor seemed to know when students didn't understand the material.

Code	Freq	Percent
0	4	0.5
1	20	2.6
2	38	4.9
3	131	17.0
4	322	41.9
5	253	32.9
Missing Values	1	0.1
Total	769	100.0

Mean: 3.961 Mode: 4.000

Q4--Difficult concepts were made understandable

Code	Freq	Percent
0	7	0.9
1	22	2.9
2	41	5.3
3	145	18.9
4	314	40.8
5	239	31.1
Missing Values	1	0.1
Total	769	100.0

Mean: 3.893 Mode: 4.000

Q5--I had confidence in the instructor's knowledge of the subject.

Code	Freq	Percent
0	1	0.1
1	9	1.2
2	17	2.2
3	59	7.7
4	227	29.5
5	455	59.2
Missing Values	1	0.1
Total	769	100.0

Mean: 4.431 Mode: 5.000

Q6--I felt free to ask questions.

Code	Freq	Percent
0	0	0.0
1	8	1.0
2	17	2.2
3	44	5.7
4	242	31.5
5	456	59.3
Missing Values	2	0.3
Total	769	100.0

Mean: 4.462 Mode: 5.000

Q7--The instructor was prepared for the class.

Code	Freq	Percent
0	6	0.8
1	5	0.7
2	13	1.7
3	75	9.8
4	298	37.6
5	378	49.2
Missing Values	3	0.4
Total	769	100.0

Mean: 4.311 Mode: 5.000

Q8--The instructor's objectives for the course have been made clear.

Code	Freq	Percent
0	2	0.3
1	20	2.6
2	34	4.4
3	126	16.4
4	299	38.9
5	287	37.3
Missing Values	1	0.1
Total	769	100.0

Mean: 4.033 Mode: 4.000

Q9--The instructor made this course a worthwhile learning experience.

Code	Freq	Percent
0	5	0.7
1	27	3.5
2	42	5.5
3	117	15.2
4	262	34.1
5	315	41.0
Missing Values	1	0.1
Total	769	100.0

Mean: 4.017 Mode: 5.000

Q10--The instructor stimulated my interest in the subject area.

Code	Freq	Percent
0	5	0.7
1	30	3.9
2	52	6.8
3	139	18.1
4	258	33.6
5	284	36.9
Missing Values	1	0.1
Total	769	100.0

Mean: 3.910 Mode: 5.000

Q11--The instructor cared about student progress and did his share in helping us to learn.

Code	Freq	Percent
0	3	0.4
1	13	1.7
2	31	4.0
3	119	15.5
4	297	38.6
5	304	39.5
Missing Values	2	0.3
Total	769	100.0

Mean: 4.094 Mode: 5.000

Q12--Overall, I would rate this instructor

Code	Freq	Percent
0	2	0.3
1	23	3.0
2	40	5.2
3	145	18.9
4	269	35.0
5	288	37.5
Missing Values	2	0.3
Total	769	100.0

Mean: 3.982 Mode: 5.000

Q13--Overall, I would rate this course

Code	Freq	Percent
0	1	0.1
1	38	4.9
2	60	7.8
3	226	29.4
4	290	37.7
5	152	19.8
Missing Values	2	0.3
Total	769	100.0

Mean: 3.593 Mode: 4.000

Q14--Overall, I would rate the textbook(s)

Code	Freq	Percent
0	43	5.6
1	57	7.4
2	74	9.6
3	220	28.6
4	232	30.2
5	139	18.1
Missing Values	4	0.5
Total	769	100.0

Mean: 3.252 Mode: 4.000

Q15--Overall, I would rate the quality of the exams

Code	Freq	Percent
0	83	10.8
1	32	4.2
2	50	6.5
3	209	27.2
4	263	34.3
5	125	16.3
Missing Values	7	0.9
Total	769	100.0

Mean: 3.197 Mode: 4.000

AD-A144 292 STUDENT-FACULTY EVALUATION: WHAT PLACE IN ACADEME?(U) 2/2
NAVAL POSTGRADUATE SCHOOL MONTEREY CA
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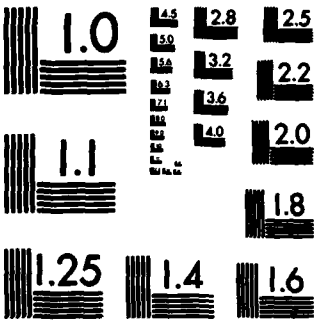

Q16--Overall, I would rate the laboratories

Code	Freq	Percent
0	519	67.5
1	21	2.7
2	20	2.6
3	50	6.5
4	43	5.6
5	57	7.4
Missing Values	59	7.7
Total	769	100.0

Mean: 0.941 Mode: 0.000

Q17--What is your anticipated grade for this course?

Code	Freq	Percent
0	8	1.0
1	20	2.6
2	60	7.8
3	161	20.9
4	198	25.7
5	114	14.8
Missing Values	208	27.0
Total	769	100.0

Mean: 3.538 Mode: 4.000

Q18--What is your total cumulative grade point average at the Naval Postgraduate School?

Code	Freq	Percent
0	13	1.7
1	20	2.6
2	72	9.4
3	146	19.0
4	180	23.4
5	108	14.0
Missing Values	230	29.0
Total	769	100.0

Mean: 3.455 Mode: 4.000

Q19--Prior to this quarter, what were your expectations of this course in regard to interest, challenge, and potential usefulness in your career?

Code	Freq	Percent
0	33	4.3
1	19	2.5
2	31	4.0
3	156	20.3
4	200	26.0
5	122	15.9
Missing Values	208	27.0
Total	769	100.0

Mean: 3.492 Mode: 4.000

Q20--To what extent do you think SOF's are worth your time and effort to fill out?

Code	Freq	Percent
0	38	4.9
1	52	6.8
2	58	7.5
3	236	30.7
4	127	16.5
5	49	6.4
Missing Values	209	27.2
Total	769	100.0

Mean: 2.909 Mode: 3.000

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